CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC HEALTH
AIR MANAGEMENT SERVICES

PLAN APPROVAL

Plan Approval No.: 09040 Date: February 1, 2010

Plant ID: 01501

Owner: Sunoco, Inc. (R&M)
Address: 3144 Passuynk Ave
Philadelphia, PA 19145

Source: Sunoco, Inc. (R&M)
Location: 3144 Passyunk Ave
Philadelphia, PA 19145

Attention: Glenn Tashjian
215-339-2143

Pursuant to the provisions of Title 3 of the Philadelphia Code, the Air Management Code of February 17, 1995, as amended, and after due consideration of a plan approval application received under the rules and regulations of the Philadelphia Air Pollution Control Board, the City of Philadelphia Department of Public Health, Air Management Services (AMS) on February 1, 2010 approved plans for the installation and temporary operation of the air contamination device(s) described below:

A "*SCR designed by URS Corp"* Selective Catalytic Reduction (SCR) system to reduce NOx emissions by 136.9 ton per year from the 2001-2002 baseline years at process heaters H-400/401 in unit 1332

a. 112 of the 136.9 ton per year of NOx reduction will be used to comply with the Supplemental and Environmental Projects and State and Local Environmentally Beneficial Projects of the Consent Decree Order No. 05-CV-2866.
b. 24.9 of the 136.9 ton per year of NOx reduction is to be applied to Consent Decree or future projects.

This Plan Approval expires on August 2, 2011. If construction has not been completed by this date, an application for either an extension or new plan approval must be made. The conditions of this plan approval will remain in effect until they are incorporated in an operating permit.

This Plan Approval is subject to conditions prescribed in the attachment.

Edward Wiener
Chief of Source Registration
(215)-685-9427

PLAN APPROVAL CONDITIONS
PLAN APPROVAL NO. 09040
COMPANY: SUNOCO, INC. (R&M)

1. The 1332 heater H400/401 Selective Catalytic Reduction (SCR) system shall be installed, operated and maintained in accordance with the manufacturer's specification, good engineering practices, and the specifications in the application (as approved herein).

2. Nitrogen Oxide (NOx) emissions from the H-400/401 heaters at Unit 1332 shall not exceed 62.7 tons per year on a rolling 12-month basis.

3. Nitrogen Oxides (NOx) emissions into the atmosphere from the shared exit stack of the process heaters (H-400/401) after the SCR system shall not exceed 0.06 lb/MMBTU on a 365 rolling operating day basis, calculated daily.

4. Ammonia (NH3) emission from the shared exit stack of the process heaters (H-400/401) after the SCR system shall not exceed 1.16 lbs/hr. [*25 Pa Code 127.1*]

5. Particulate matter emissions from the Heater H-401 shall not exceed 0.17 lb/MMBTU and H-400 shall not exceed 0.19 lb/MMBTU [*25 PA Code 123.11(a)(2) and AMS Reg. II, Sec. V*].

6. Carbon Monoxide (CO) emissions from the 1332 Heaters H-400/401 shall not exceed 1% by volume of exhaust gases from the shared exit stack of the process heaters (H-400/401) after the SCR system. [*AMR VIII*]

7. The maximum heat input of H-400 process heater shall be 186 MMBTU/hr and the maximum heat input of the H-401 process heater shall be 233 MMBTU/hr [*AMS RACT Plan Approval dated 8/1/2000*]

8. Sunoco shall operate the SCR system while operating the heaters (H-400/401) except during times required to replace SCR catalyst or to do maintenance to the SCR/air pre-heater system or to operate the heaters at low firing rate during reformer catalyst regenerations. Sunoco shall take a daily NOx sample during these maintenance periods when it is necessary to by-pass the SCR/air pre-heater system and the NOx CEM, and the heaters are operated in natural draft mode. During these natural draft operating periods the maximum allowable NOx limitation will be 0.156 lb/MMBTU, as defined in the RACT Plan Approval (8/1/2000). All emissions during the natural draft duration shall be counted toward the annual limitation in Condition 2.

9. Beginning December 31, 2010, the Heaters must comply with the requirements of 40 CFR 60 Subpart J. [*Consent Decree Order 05-CV-2866*]

    a. The 1332 H400 & H401 heater shall not burn any fuel gas that contains hydrogen sulfide (H_2S) in excess of 230 mg/dscm (0.10 gr/dscf) [*40 CFR 60.104 (a) (1)*]

        i. Sunoco shall operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration (dry basis) of H_2S in fuel gases before being burned in any fuel gas combustion device. [*40 CFR 60.105 (a) (4)*]

    b. Sunoco shall report excess emission defined as follows: [*40 CFR 60.105 (e)*]

        i. All rolling 3-hour periods during which the average concentration of H_2S as measured by the

H_2S continuous monitoring system 230 mg/dscm (0.10 gr/dscf).

10. During heater start-up the SCR system shall be brought into operation as soon as the flue gas temperature has stabilized in the range of 650 to 780 degrees Fahrenheit (F), the temperatur**e range** necessary to satisfy the catalyst system.

11. Sunoco shall conduct a performance test at the exhaust stack to establish emission factors and demonstrate compliance with Condition 4 for NH3. NH3 emissions shall be determined using the average of 3 one-hour tests per the EPA Reference Method CTM 027. The performance test shall be conducted no later than 90 days after start-up. Sunoco shall submit a stack test protocol to Air Management Services (AMS) at least 30 days prior to the test date and the test results must be submitted to AMS within 60 days of testing. If at any time AMS has cause to believe that air contaminant emissions from this source is in excess of the limits specified in this permit, Sunoco shall be required to conduct whatever tests are deemed necessary by AMS to determine the actual emission rates.

    a. Maximum ammonia injection shall be determined based on the performance test. To increase the ammonia injection rate, Sunoco must demonstrate via AMS-approved performance tests that the applicable emission limits can be achieved at the higher rate.

12. Sunoco, Inc shall install, operate, calibrate, and maintain an instrument for continuously monitoring and recording the concentration by volume (dry basis, 0 percent excess air) of NO_X emissions into the atmosphere, on the exit stack after the SCR system. The monitor must include an O_2 monitor for correcting the data for excess air. The NOx and O2 CEMS must comply with PA CSMM Revision 7 and 25 PA Code Chapter 139.

13. Sunoco shall monitor and keep records for NOx, PM, NH3 emissions from the heaters.
    a. NOx emissions shall be determined daily based on CEM data. The NOx emission shall be converted to lbs/MMBTU at 0% O_2 using the equation below to ensure compliance with Condition 3.

        $Lb/MMBTU = (ppmdv)*(1.194x10^{-7})*(F\text{-}factor)*(20.9 / (20.9 - \% O_2))$
        where the F factor = scf flue gas per MMBTU calculated daily from daily fuel gas samples.

    b. NH3 emissions shall be determined based on AMS approved stack data and the PM emissions shall be determined based on AP-42 emission factor or other AMS-approved emission factor.

14. Sunoco, Inc. shall monitor and record the fuel type and fuel usage on a daily basis to ensure the capacity limits in Condition 7 are not exceeded.

15. Sunoco, Inc. shall monitor and record ammonia injection on an hourly basis to ensure compliance with Condition 11.

16. Sunoco, Inc shall continuously monitor and record flue gas temperature at the inlet of the SCR to ensure good operating practice as indicated at Conditions 1 and 10.

17. Sunoco shall submit CEM and production reports to Air Management Services on a quarterly basis. CEM reports must meet the requirements of the PA CSMM.

18. Any notifications required, as a result of any condition herein should be directed to

Chief of Source Registration
Air Management Services
321 University Avenue
Philadelphia, PA 19104

and all notifications required by the Consent Decree and NSPS shall also be directed to EPA at:

Associate Director
Office of Enforcement and Compliance Assistance (3AP20)
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

cc: AMS Conformance File